

2. Please replace the paragraph beginning on page 10, line 22 (with the words "The new polymeric thickeners.....") and ending on page 10, line 27 (with the words "..... WO 00/04787.") with the following replacement paragraph.

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-- The new polymeric thickeners are effective with a broad range of oils. Suitable oils include mineral oils; vaseline oils; hydrogenated polyisobutylene; triglycerides; oily esters derived from a long-chain acid or a long-chain alcohol or both; animal oils; silicone oils; long chain alcohols; esters derived from lanolic acid; and acetyl glycerides, as disclosed at column 3, line 37, to column 4, line 4, of U.S. Patent No. 5,736,125. For thickening silicone oils, it is preferred to use an SCC polymer containing units derived from a monomer containing silicon, for example a block copolymer containing SCC blocks and polysiloxane blocks. SCC/polysiloxane polymers of this type are described for example in WO 93/07194 and WO 00/04787. --

15 In the Claims

Please rewrite claims 1, 2, 6, 7, 9, 14, 15 and 20 as set out below, cancel claim 8, and add new claims 21-46 as set out below.

20 In accordance with 37 CFR 121 (c):

(1) A clean version of the entire set of pending claims is set out below. In this version,

(i) the amended claims are without markings to indicate the changes made,

25 (ii) in each claim, a parenthetical expression follows the claim number indicating the status of the claim as amended, unchanged or new.

(2) Attached hereto is a separate paper entitled

"Version of Amended Claims with Markings to show Changes

30 requested by the accompanying Reply, filed in accordance with 37 CFR 1.121(c)(1)(ii)".

That separate paper sets out each of the rewritten claims (but not the canceled claims or the new claims), marked up to show all the changes relative to the previous version of the claim. In that separate paper,

- (i) a parenthetical expression (which is the same as the parenthetical expression in the clean version of claims set out below) follows the claim number and indicates the status of the claim as amended, and
 - (ii) the changes are shown by brackets (for deleted matter) and underlining (for added matter).

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1. (Amended) A thickened oil composition which comprises
(1) an oil, and
(2) uniformly dispersed in the oil as a crystallized solid, a side chain
crystalline (SCC) polymer which
15 (a) is substantially free of fluorine atoms, carboxylic acid groups,
carboxylic acid salt groups, sulfonic acid groups, sulfonic acid salt
groups, amido groups, pyrrolidino groups and imidazole groups;
and
(b) is present in amount such that it thickens the oil.

20 2. (Amended) A composition according to Claim 1, which is at a temperature T_s ,
where T_s is from 15 to 25 °C, and wherein the SCC polymer has a crystalline melting
point, T_p , which is 10 to 30 °C above T_s .

25 3. (Unchanged) A composition according to Claim 2 wherein T_p is 40 to 50 °C.

4. (Unchanged) A composition according to Claim 2 wherein T_p is 43 to 48 °C.

30 5. (Unchanged) A composition according to Claim 3 wherein the SCC polymer has
a heat of fusion of at least 20 J/g, and an onset-of-melting point T_o such that T_p-T_o is
less than 10 °C.

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6 (Amended) A thickened oil composition which comprises
(1) an oil, and
(2) uniformly dispersed in the oil as a crystallized solid, a side chain
crystalline (SCC) polymer which
(a) is substantially free of fluorine atoms, carboxylic acid groups,
carboxylic acid salt groups, sulfonic acid groups, sulfonic acid salt
groups, amido groups, pyrrolidino groups and imidazole groups;
and
(b) contains 10-30% by weight of repeating units containing
hydroxyl groups.
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- 7.(Amended) A thickened oil composition which comprises
(1) an oil, and
15 (2) uniformly dispersed in the oil as a crystallized solid, a side chain
crystalline (SCC) polymer which
(a) has a crystalline melting point, T_p , of 40-50 °C.;
(b) consists essentially of
(i) 70-99% by weight of repeating units derived from at
least one n-alkyl acrylate or methacrylate ester in which the
n-alkyl group contains 16 to 22 carbon atoms,
(ii) 1-30% by weight of repeating units derived from at
least one acrylate or methacrylate ester in which the ester
group contains a hydroxyl-substituted alkyl group containing
less than 12 carbon atoms, and
20 (iii) 0-30% by weight of repeating units derived from at least one
acrylate or methacrylate ester in which the ester group contains an
unsubstituted alkyl group containing less than 16 carbon atoms.
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30 Claim 8 has been canceled.

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9. (Amended) A thickened oil composition which comprises
(1) an oil, and
(2) dispersed in the oil, a polymer which
(a) has a crystalline melting point, T_p , and an onset of melting temperature, T_o , such that $T_p - T_o$ is less than $T_p^{0.7}$;
(b) is soluble in the oil at temperatures above T_p ,
(c) has been dispersed in the oil by a process which comprises
(i) dissolving the polymer in the oil at a temperature above T_p , and
(ii) cooling the solution to crystallize the polymer in the oil,
(d) is a side chain crystalline (SCC) polymer which is substantially free of fluorine atoms, carboxylic acid groups, carboxylic acid salt groups, sulfonic acid groups, sulfonic acid salt groups, amido groups, pyrrolidino groups and imidazole groups;
and
(e) is present in amount such that it thickens the oil;

the composition being at a temperature T_s which is below T_p .

10. (Unchanged) A composition according to Claim 9 wherein T_s is from 15 to 25 °C and T_p is 10 to 30 °C above T_s .

11. (Unchanged) A composition according to Claim 9 wherein T_p is 40 to 50 °C.

12. (Unchanged) A composition according to Claim 9 wherein the SCC polymer has a heat of fusion of the least 20 J/g, and an onset-of-melting point T_o such that $T_p - T_o$ is less than 10 °C.

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13. (Amended) A thickened oil composition which comprises
(1) an oil, and

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- (2) which uniformly dispersed in the oil as a crystallized solid, an SCC polymer
- (a) consists essentially of
- (i) 70-99% by weight of repeating units derived from at least one n-alkyl acrylate or methacrylate ester in which the n-alkyl group contains 16 to 22 carbon atoms,
- (ii) 1-30% by weight of repeating units derived from at least one acrylate or methacrylate ester in which the ester group contains a hydroxyl-substituted alkyl group containing less than 12 carbon atoms, and
- (iii) 0-29% by weight of repeating units derived from at least one acrylate or methacrylate ester in which the ester group contains an unsubstituted alkyl group containing less than 16 carbon atoms; and
- (b) is substantially free of fluorine atoms, carboxylic acid groups, carboxylic acid salt groups, sulfonic acid groups, sulfonic acid salt groups, amido groups, pyrrolidino groups and imidazole groups.

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14. (Amended) A composition according to Claim 13 wherein the SCC polymer contains 10-30% by weight of the repeating units derived from at least one acrylate or methacrylate ester in which the ester group contains a hydroxyl-substituted alkyl group containing less than 12 carbon atoms.

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15. (Unchanged) A thickened oil composition which is at a temperature T_s of 15 to 25 °C, and which comprises

(1) an oil, and

(2) a side chain crystalline (SCC) polymer which

(a) is uniformly dispersed in the oil as a crystallized solid

(b) has a crystalline melting point, T_p , of 43 to 48 °C, and

(c) consists essentially of

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 - (i) 70-99% by weight of repeating units derived from at least one n-alkyl acrylate or methacrylate ester in which the n-alkyl group contains 16 to 22 carbon atoms,
 - (ii) 1-30% by weight of repeating units derived from at least one acrylate or methacrylate ester in which the ester group contains a hydroxyl-substituted alkyl group containing less than 12 carbon atoms, and
 - (iii) 0-29% by weight of repeating units derived from at least one acrylate or methacrylate ester in which the ester group contains an unsubstituted alkyl group containing less than 16 carbon atoms.

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16. (Unchanged) A composition according to Claim 15 wherein the SCC polymer
contains 15-25 percent by weight of the repeating units derived from at least one
acrylate or methacrylate ester in which the ester group contains a hydroxyl-substituted
15 alkyl group.

17. (Unchanged) A composition according to Claim 15 wherein the SCC polymer consists essentially of

- 20 (i) 70-99% by weight of the repeating units derived from at least one n-alkyl acrylate or methacrylate ester in which the n-alkyl group contains 16 to 22 carbon atoms, and

(ii) 1-30% by weight of the repeating units derived from at least one acrylate or methacrylate ester in which the ester group contains a hydroxyethyl, hydroxypropyl, or hydroxybutyl group.

25 18. (Unchanged) A composition according to Claim 17 wherein the SCC polymer contains 15-25 percent by weight of the repeating units derived from at least one acrylate or methacrylate ester in which the ester group contains a hydroxyl-substituted alkyl group.

19. (Unchanged) A composition according to Claim 15 which contains less than 1% by weight of surface active agents, based on weight of the oil.

20. (Amended) A method of making a thickened oil composition comprising an oil and, dispersed in the oil, a side chain crystalline (SCC) polymer which

- (a) has a crystalline melting point, T_p , and an onset of melting temperature, T_o , such that $T_p - T_o$ is less than $T_p^{0.7}$ and
(b) is substantially free of fluorine atoms, carboxylic acid groups, carboxylic acid salt groups, sulfonic acid groups, sulfonic acid salt groups, amido groups, pyrrolidino groups and imidazole groups;

10 the method comprising

- (i) dissolving the SCC polymer in the oil at a temperature above T_p , and
(ii) cooling the solution to crystallize the polymer in the oil;

the amount of the SCC polymer being such that, after step (ii), it thickens the oil.

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21. (New) A thickened oil composition which is free of water and which comprises

- (1) an oil, and
(2) uniformly dispersed in the oil as a crystallized solid, at least 2% by weight, based on the weight of the oil, of a side chain crystalline (SCC) polymer which is substantially free of fluorine atoms, carboxylic acid groups, carboxylic acid salt groups, sulfonic acid groups, sulfonic acid salt groups, amido groups, pyrrolidino groups and imidazole groups.

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22. (New) A composition according to Claim 21, which is at a temperature T_s , where T_s is from 15 to 25 °C, and wherein the SCC polymer has a crystalline melting point, T_p , which is 10 to 30 °C above T_s .

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23. (New) A composition according to Claim 22 wherein T_p is 40 to 50 °C.

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24. (New) A composition according to Claim 22 wherein T_p is 43 to 48 °C.

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25. (New) A composition according to Claim 23 wherein the SCC polymer has a heat of fusion of at least 20 J/g, and an onset-of-melting point T_o such that T_p-T_o is less than 10 °C.

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5 26. (New) A composition which is a water-in-oil emulsion or an oil-in-water emulsion and which comprises

- (1) water,
(2) an oil, and
(3) uniformly dispersed in the oil as a crystallized solid, a side chain crystalline (SCC) polymer which is substantially free of fluorine atoms, carboxylic acid groups, carboxylic acid salt groups, sulfonic acid groups, sulfonic acid salt groups, amido groups, pyrrolidino groups and imidazole groups.

10 15 27. (New) A composition according to Claim 26, which is at a temperature T_s , where T_s is from 15 to 25 °C, and wherein the SCC polymer has a crystalline melting point, T_p , which is 10 to 30 °C above T_s .

20 28. (New) A composition according to Claim 26 wherein T_p is 40 to 50 °C.

25 29. (New) A composition according to Claim 26 which is an oil-in-water emulsion and which contains less than 1% by weight of surface active agents, based on the weight of the oil.

30 30. (New) A thickened oil composition according to Claim 26 wherein the SCC polymer has a heat of fusion of at least 20 J/g, and an onset-of-melting point T_o such that T_p-T_o is less than 10 °C.

30 31. (New) A composition according to Claim 26 which contains at least 0.5% by weight of the SCC polymer, based on the weight of the composition.

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- Cylohexane*
32. (New) A thickened oil composition which comprises
(1) an oil selected from the group consisting of mineral oils; vaseline oils; hydrogenated polyisobutylene; triglycerides; oily esters derived from a long-chain acid or a long-chain alcohol or both; animal oils; silicone oils; long chain alcohols; esters derived from lanolic acid; and acetyl glycerides , and
(2) uniformly dispersed in the oil as a crystallized solid, a side chain crystalline (SCC) polymer which is substantially free of fluorine atoms, carboxylic acid groups, carboxylic acid salt groups, sulfonic acid groups, sulfonic acid salt groups, amido groups, pyrrolidino groups and imidazole groups.
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33. (New) A composition according to Claim 32, which is at a temperature T_s , where T_s is from 15 to 25 °C, and wherein the SCC polymer has a crystalline melting point, T_p , which is 10 to 30 °C above T_s .
- 15 34. (New) A composition according to Claim 32 wherein T_p is 40 to 50 °C.
35. (New) A composition according to Claim 32 wherein T_p is 43 to 48 °C.
- 20 36. (New) A composition according to Claim 32 wherein the SCC polymer has a heat of fusion of at least 20 J/g, and an onset-of-melting point T_o such that T_p-T_o is less than 10 °C.
- 25 37. (New) A composition according to Claim 1 wherein each of the following conditions is fulfilled by the SCC polymer:
(1) at most 1% of the carbon atoms are substituted by one or more fluorine atoms;
(2) at most 0.2 mol% of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;
(3) at most 0.5% by weight of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;
30 (4) the polymer has an acidity of less than 0.07 meq/g;

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- (5) at most 1 mol% of the repeating units are derived from acrylamide
 - (6) at most 0.2 mol% of the repeating units are derived from N-vinylpyrrolidone;
 - (7) at most 0.2 mol% of the repeating units are derived from N-vinylimidazole.

38. (New) A composition according to Claim 1 wherein each of the following conditions is fulfilled by the SCC polymer:

- (1) none of the carbon atoms are substituted by one or more fluorine atoms;
- (2) none of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;
- (3) none of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;
- (4) the polymer has an acidity of less than 0.07 meq/g;
- (5) none of the repeating units are derived from acrylamide;
- (6) none of the repeating units are derived from N-vinylpyrrolidone;
- (7) none of the repeating units are derived from N-vinylimidazole.

39. (New) A composition according to Claim 21 wherein each of the following conditions is fulfilled by the SCC polymer:

- (1) at most 1% of the carbon atoms are substituted by one or more fluorine atoms;
- (2) at most 0.2 mol% of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;
- (3) at most 0.5% by weight of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;
- (4) the polymer has an acidity of less than 0.07 meq/g;
- (5) at most 1 mol% of the repeating units are derived from acrylamide
- (7) at most 0.2 mol% of the repeating units are derived from N-vinylpyrrolidone;
- (7) at most 0.2 mol% of the repeating units are derived from N-vinylimidazole.

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40. (New) A composition according to Claim 21 wherein each of the following conditions is fulfilled by the SCC polymer:
- (1) none of the carbon atoms are substituted by one or more fluorine atoms;
- (2) none of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;
- (3) none of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;
- (4) the polymer has an acidity of less than 0.07 meq/g;
- (5) none of the repeating units are derived from acrylamide;
- 10 (6) none of the repeating units are derived from N-vinylpyrrolidone;
- (7) none of the repeating units are derived from N-vinylimidazole.
41. (New) A composition according to Claim 26 wherein each of the following conditions is fulfilled by the SCC polymer:
- 15 (1) at most 1% of the carbon atoms are substituted by one or more fluorine atoms;
- (2) at most 0.2 mol% of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;
- (3) at most 0.5% by weight of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;
- 20 (4) the polymer has an acidity of less than 0.07 meq/g;
- (5) at most 1 mol% of the repeating units are derived from acrylamide
- (8) at most 0.2 mol% of the repeating units are derived from N-vinylpyrrolidone;
- 25 (7) at most 0.2 mol% of the repeating units are derived from N-vinylimidazole.
42. (New) A composition according to Claim 26 wherein each of the following conditions is fulfilled by the SCC polymer:
- (1) none of the carbon atoms are substituted by one or more fluorine atoms;
- 30 (2) none of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;

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- (3) none of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;
- (4) the polymer has an acidity of less than 0.07 meq/g;
- (5) none of the repeating units are derived from acrylamide;
- (6) none of the repeating units are derived from N-vinylpyrrolidone;
- (7) none of the repeating units are derived from N-vinylimidazole.

43. (New) A composition according to Claim 32 wherein each of the following conditions is fulfilled by the SCC polymer:

- 10 (1) at most 1% of the carbon atoms are substituted by one or more fluorine atoms;
- (2) at most 0.2 mol% of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;
- (3) at most 0.5% by weight of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;
- 15 (4) the polymer has an acidity of less than 0.07 meq/g;
- (5) at most 1 mol% of the repeating units are derived from acrylamide
- (9) at most 0.2 mol% of the repeating units are derived from N-vinylpyrrolidone;
- 20 (7) at most 0.2 mol% of the repeating units are derived from N-vinylimidazole.

44. (New) A composition according to Claim 32 wherein each of the following conditions is fulfilled by the SCC polymer:

- 25 (1) none of the carbon atoms are substituted by one or more fluorine atoms;
- (2) none of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;
- (3) none of the repeating units contain a carboxyl group, a carboxyl salt group, a sulfonic acid group, or a sulfonic acid salt group;
- (4) the polymer has an acidity of less than 0.07 meq/g;
- 30 (5) none of the repeating units are derived from acrylamide;
- (6) none of the repeating units are derived from N-vinylpyrrolidone;

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(7) none of the repeating units are derived from N-vinylimidazole.

45.

A thickened oil composition which comprises

(1) an oil, and

(2) uniformly dispersed in the oil as a crystallized solid, a side chain
crystalline (SCC) polymer which

(a) consists essentially of

(i) 70-99% by weight of repeating units derived from at
least one n-alkyl acrylate or methacrylate ester in which the
n-alkyl group contains 16 to 50 carbon atoms,

(ii) 1-30% by weight of repeating units derived from
hydroxyethyl acrylate, and

(iii) 0-29% by weight of repeating units derived from at
least one acrylate or methacrylate ester in which the ester
group contains an unsubstituted alkyl group containing less
than 16 carbon atoms.

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46.

A composition according to Claim 45 wherein the SCC polymer contains 15-25%
by weight of the repeating units derived from hydroxyethyl acrylate.